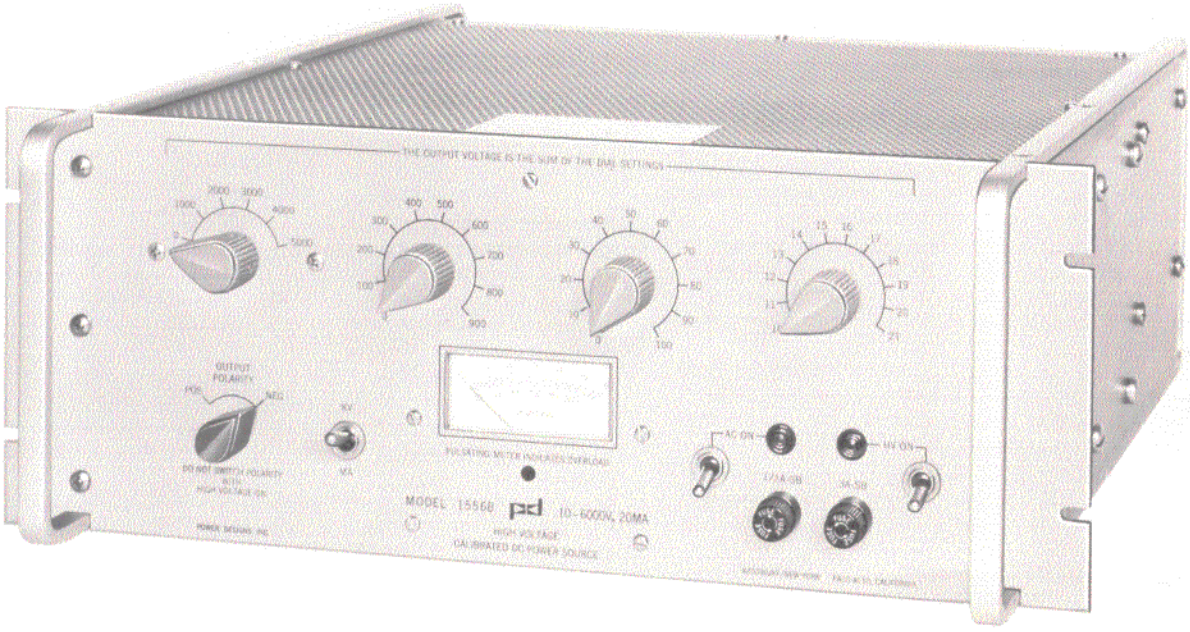
CALIBRATED HIGH VOLTAGE SOURCE

10-6021 VDC 0-20 MA



APPLICATIONS

PHOTO MULTIPLIERS
SOLID STATE DETECTORS
PROPORTIONAL COUNTERS
ELECTRON OPTICS
IMAGE INTENSIFIERS
CRT DISPLAYS
CW LASERS

GENERAL DESCRIPTION

The Model 1556B is a calibrated high voltage power source designed to supply closely regulated DC with unusually low noise and ripple content. This instrument reflects field experience with more than 5000 units in field service for six years.

Size and weight have been reduced, performance and reliability improved over its predecessors, the Model 1545 and Model 1556. This has been accomplished through the application of new solid state integrated circuit technology and unique multi-grid control of the series regulator tube.

FEATURES

- Calibrated digital control of output voltage in thousand, hundred and ten volt steps with a 10 volt interpolation potentiometer having a resolution of better than 10 millivolts. Overall accuracy is better than 0.25% of the dial settings above 250 volts.
- All solid state integrated circuit control amplifier employing a new 25-volt, low noise zener voltage reference. A vacuum tube is utilized for the series pass function only.
- Fast acting electronic overload protection permits continuous operation into a short circuit without damage. Circuit periodically senses output condition, restores normal function automatically upon fault clearance. Pulsating meter signals malfunction*.
- Polarity reversing switch provides operation with either positive or negative output terminal at ground potential. An option is available for operation of the normally grounded terminal at up to 500 volts above chassis for pulse height analyzer automatic calibration control, modulation or similar applications.

*Robotec® Patent No. 3,083,330 SERIAL NO: 108003

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MODEL 1556B

DESIGN FEATURES

- Dual volt-ammeter permits output voltage or current monitoring. Spring return toggle switch automatically returns meter to voltage monitor position to avoid damage in the event of current overload or short circuit.
- Ceramic wafer high voltage switch assemblies and the output voltage interpolation potentiometer are held at ground potential regardless of DC output polarity.
- Hermetically sealed 5 ppm wirewound divider resistors are protected against voltage and current transients with gas discharge tubes. These transients will damage divider resistors or produce noisy operation due to inter-turn shorts, particularly when the output is suddenly reduced by several kilovolts and the internal filter capacitors discharge into the remaining resistors in the divider chain. The flashing of these gas discharge devices when the high voltage switches are operated graphically demonstrates this protective action.
- Solid state amplifier circuitry is protected against damage or degradation from series pass tube arcs due to cathode shedding during life by fast diodes and gas discharge tubes in each electrode lead and an inductive resistance in series with the tube anode.
- Hand-wired circuit boards utilizing dust and moisture resistant silicone glass material minimizes corona and bridging of lands produced in unprotected printed circuit boards due to high voltage dust precipitation phenomena.
- Corona guarded vacuum epoxy encapsulated power transformers with multiple electrostatic shields provide environmental isolation and freedom from conventional corona degradation.
- Vacuum, epoxy encapsulated, corona-free high voltage doubler rectifier assembly with built-in recovery time transient suppression networks and components derated to 25% of manufacturers' ratings insures lifetime reliability.
- Low noise and low leakage plastic film output capacitors provide exceptional stability. Exclusive compensation circuit minimizes output voltage drift due to feedback capacitor insulation resistance change with temperature.
- Computer grade electrolytic capacitors are utilized in low voltage circuits.
- Line and load circuits are individually fused. Separate high voltage standby switch.
- Front and rear handle/rail construction provides ease in bench handling or rack installation.
- All units are burned-in for a minimum of 50 hours prior to final inspection.

ELECTRICAL SPECIFICATIONS

Output: 10-6021 VDC continuously adjustable at 0 to 20 milliamperes.

Input: 105 to 125 volts, 47 to 440 Hz, 220 watts nominal. 210 to 250 volt operation available.

Regulation: 0.001% +2 millivolts for line or load variations over the operating range.

Ripple and Noise: 1 millivolt peak-to-peak maximum to 30 MHz.

Resetability: 0.05% or 50 millivolts (whichever is greater).

Stability: Less than 0.005% drift in output voltage per hour; less than 0.02% drift per 24 hour period at constant ambient temperature after warm-up.

Recovery Time: Less than 50 microseconds to return to within regulation limits for 100% step change in rated load.

Voltage Controls: Precision calibrated dividers:
0 to 5000 volts in five 1000 volt steps
0 to 900 volts in nine 100 volt steps
0 to 100 volts in ten 10 volt steps
10 to 21 volts continuously adjustable interpolation potentiometer with better than 10 mV resolution.

Calibration Accuracy: 0.25% of the voltage control dial readings from 250 to 6012 volts; 0.25% or 250 millivolts (whichever is greater) from 10 to 250 volts.

Temperature Coefficient: 20 parts per million per °C change in ambient after warm-up, from 10°C to 40°C.

Operating Temperature: Continuous duty at full load from 0-50°C ambient.

Storage Temperature: –40°C to +70°C

Altitude: Operating: 0-10,000 ft.
Non-Operating: to 50,000 ft.

Humidity: 0-80% RH

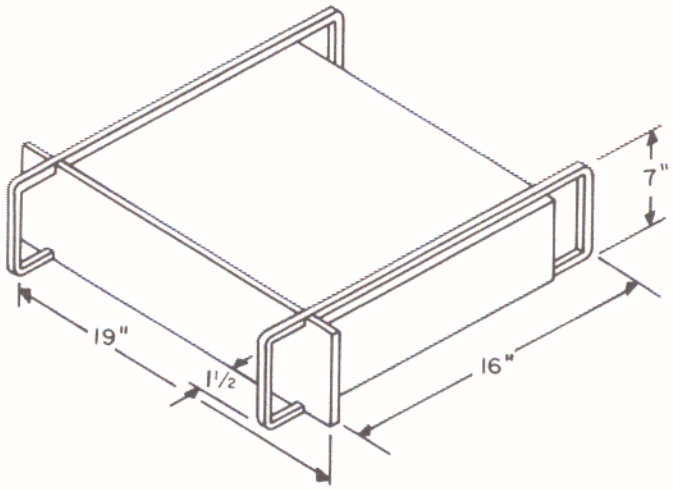
Overload Current Limiter: Patented current sensing system cycles power supply off and on in the presence of current overload of 120% or greater or a short circuit. Pulsating voltmeter signals overload. Power supply restores automatically upon fault clearance.

Output Terminals: Two MS3102A-18-16S high voltage receptacles connected in parallel are provided at rear of unit. (One mating connector is furnished.) A special rear panel warning indicator lamp is illuminated when these connectors are energized.

Metering: Front-panel volt-ammeter permits monitoring output voltage or current with an accuracy of ±2% of full scale.

Circuit Protection: AC line and DC load circuits are separately fused.

MECHANICAL SPECIFICATIONS



Weight: 47 lbs.

Finish: Light grey vinyl synthetic enamel black nomenclature panel. Perforated steel dust covers, coated grey epoxy enamel. Handles and rails, brushed anodized natural aluminum. Chassis finished in gold iridite.

PRICE: $625.00 F.O.B. Westbury, New York

Prices subject to change without notice

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